2 Sheets—Sheet 1

C. H. PORTER.
Molder's Flask.

No. 202,464. Patented April 16, 1878.

Fig. 1.

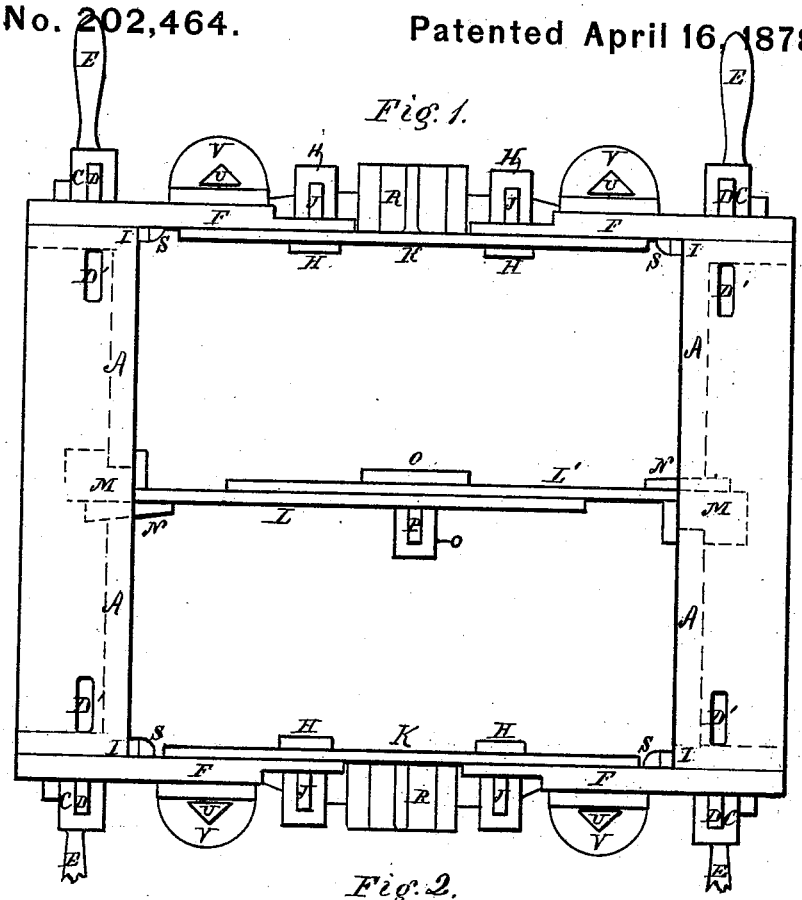
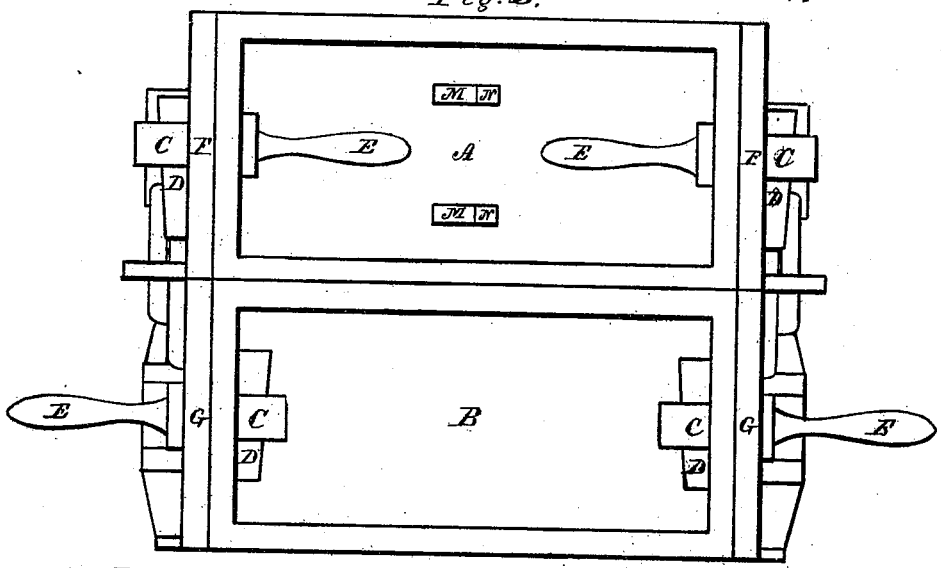


Fig. 2.



Witnesses.
Geo. D. Jewett
John J. Peters

Inventor.
Charles H. Porter.
by Thos. G. Ellis, attorney

2 Sheets—Sheet 2

C. H. PORTER.
Molder's Flask.

No. 202,464. **Patented April 16, 1878.**

Fig. 3.

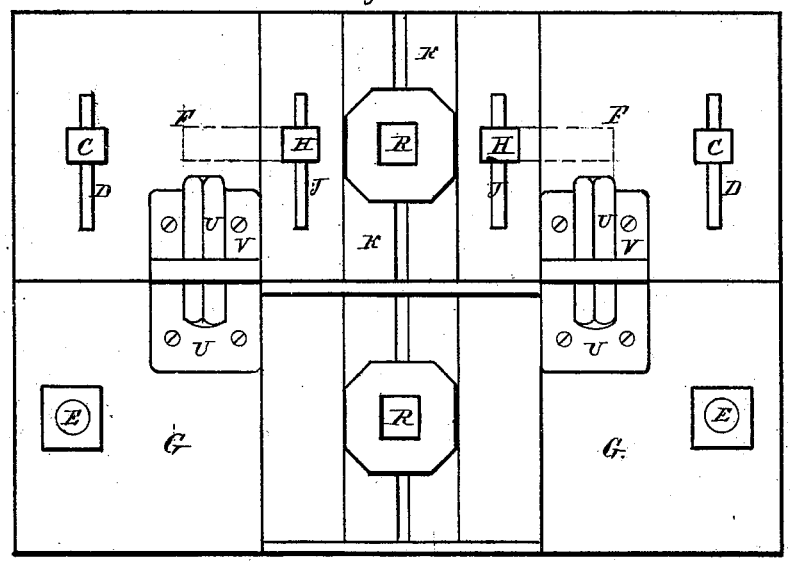
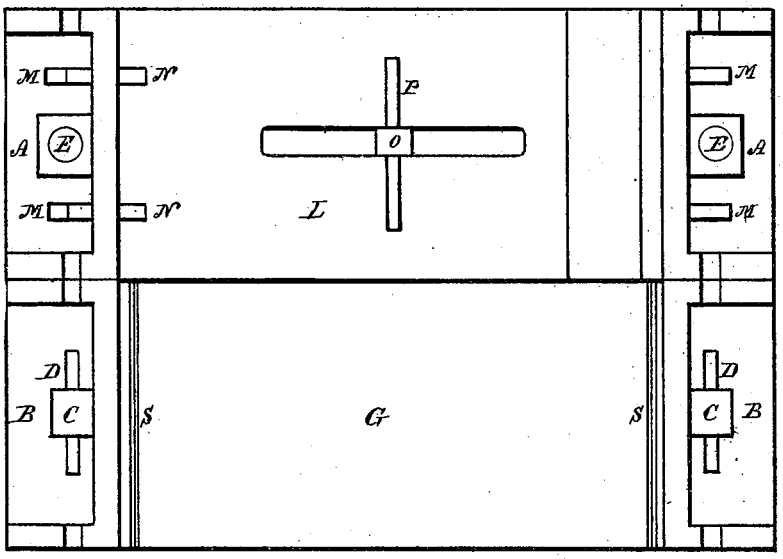


Fig. 4.



Witnesses.

Geo. D. Jewett

John J. Peters

Inventor.

Charles H. Porter

by Theo. G. Ellis, attorney

UNITED STATES PATENT OFFICE.

CHARLES H. PORTER, OF HARTFORD, CONNECTICUT, ASSIGNOR TO THE PRATT & WHITNEY COMPANY, OF SAME PLACE.

IMPROVEMENT IN MOLDERS' FLASKS.

Specification forming part of Letters Patent No. **202,464**, dated April 16, 1878; application filed February 1, 1878.

To all whom it may concern:

Be it known that I, CHARLES HENRY PORTER, of Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Molders' Flasks; and I do hereby declare that the following is a full, clear, and exact description thereof, whereby a person skilled in the art can make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

Like letters in the figures indicate the same parts.

My improvement relates to the construction of flasks for holding the sand or other material in which the molds are formed for casting iron or other metals.

My invention has for its object the construction of a flask or a series of flasks of different sizes, the several parts of which are readily detachable from each other, and which are adapted to build up other flasks of any size or proportions required for casting articles of different sizes and shapes, thus making the several parts interchangeable, so as to do duty in flasks of many different sizes, and thereby saving the accumulation of a large amount of dead material, which occurs in every foundry where flasks are made in the ordinary manner.

My invention consists in the construction and arrangement of the several parts by which the foregoing objects are secured, as will be hereinafter described.

In the accompanying drawings, Figure 1 shows a top view of one of my improved flasks. Fig. 2 is a side view of the same. Fig. 3 is an end view, showing the top part or "cope" with an extensible adjustment, and the bottom part or "drag" plain. Fig. 4 is the same with the front part cut off, so as to show the interior connecting-bar of the cope.

A A and B B are the side pieces of my improved flask. They are all made of the same rectangular size, so that they fit interchangeably in any position. They are flat upon the inside, and are furnished with a flange around the edge upon the outside, as shown in the drawings. These flanges are provided with holes in the vertical or end part, for the purpose of receiving the bolts C, which pass through them to secure the sides to the ends of the flask, or to lock two side pieces together when the sides are to be lengthened. All of the bolts C are made alike and interchangeable. They pass through the two thicknesses of metal, and are secured in their places by means of wedges or keys D, which pass through slots in the bolts. Upon the head of each bolt is a handle, E. When this handle is needed for use in moving and operating the flask, it is placed outward, in the position shown in Fig. 1 and the lower part of Fig. 2; and when it is not needed it is turned inward, out of the way, in the position shown in the upper part of Fig. 2. With small flasks the handles are generally used; but with the larger ones the flask is handled in another manner, as will be described.

D′ are holes in the upper and lower flanges of the side pieces, for inserting the keys of the bolts C when they are placed inside of the flanges, as shown in the lower part of Fig. 2.

F F and G G are the pieces forming the ends of the flask. These ends can be made extensible, as shown at F, or they can be made in one piece and solid, in which case they have to be provided of the various lengths needed for the different widths of flasks. When made extensible they are formed of three pieces, united by means of bolts and wedges H J, similar to those used for uniting the sides and corners, except that they are not provided with handles. These bolts move in slots in the inner piece K, (shown in dotted lines in Fig. 3,) which admits of considerable variation of length. When adjusted to the desired length the bolts are keyed up, so as to hold the parts firmly in place.

L and L′ are the two parts of an adjustable bar between the two sides of the cope. These two parts of the bar (shown in Fig. 1) are slotted longitudinally, as shown in Fig. 4, and are secured together, by means of a bolt and key, in the same manner as described for the adjustable ends. They are secured into the sides by means of the notched tenons M, which pass through slots in the sides, and which are then

held so that the notch embraces the side, in the manner shown by the dotted lines in Fig. 1, by means of the wedges N. This adjustable bar is inserted, after the other parts of the cope are put together, by inserting the parts M through the sides and keying them in place by the wedges N. The bolt O is then passed through the slots before mentioned, and firmly keyed in place by the wedge P.

For the purpose of handling the larger flasks with facility, the bosses R are cast or otherwise formed upon the end pieces of both the cope and the drag, these parts being interchangeable, into which pins can be inserted in the usual manner, to lift, move, or turn them while suspended from a crane, as with the ordinary flasks.

S S are raised fillets upon the end pieces, the faces of which next to the side pieces A and B are made true and parallel, square with the length of the end. They come in contact with true edges upon the sides, (shown at I, Fig. 1 in the drawings,) which may be either directly upon the interior face of the side or upon raised fillets, as shown in the drawings.

The cope and drag are held together, in the usual manner, by means of pins U, attached to the drag, passing through sockets in the plates V on the cope. The position of these pins corresponds in all the ends, so that as many intermediate layers can be introduced between the cope and drag as is desired to make the proper thickness.

By means of my invention and the parts described, flasks of any desired size can be built up from the same parts. Any number of the side pieces can be readily attached together by means of the bolts and keys, and the ends adjusted to the proper width. The parts are placed exactly in their proper places by means of the guide-fillets S S, and at once firmly keyed. Any number of these layers thus formed can be placed together to make the height desired for the casting.

After the flask has been used it can readily be taken apart and the several parts again used for castings of a different size or shape, thus dispensing with a large accumulation of waste material that would probably otherwise never again be used, and saving the expense of new flasks for every casting required.

What I claim as my invention is—

1. The extensible end pieces, composed of three parts, provided with slots and secured together with bolts and keys, substantially as herein described.

2. The adjustable double cross-bar L L', provided with slots and secured by a bolt and key, O P, substantially as herein described.

3. The notched tenon and wedge M N, in combination with the cross-bar and side, for securing them together, substantially as herein described.

4. A molder's flask constructed of interchangeable side pieces, all of the same size and shape, of which any desired number can be used, to vary the length and depth of the flask, and extensible ends to vary the width, the whole being locked together with bolts and keys, substantially as herein set forth.

CHARLES H. PORTER.

Witnesses:

THEO. G. ELLIS,

GEO. F. WRIGHT.